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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/799,481	03/11/2004	Hiroshi Okagawa	FUJO 21.012	8356
26304 7590 09/10/2007 KATTEN MUCHIN ROSENMAN LLP 575 MADISON AVENUE NEW YORK, NY 10022-2585			EXAMINER LIU, BEN H	
			ART UNIT 2609	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/799,481

Applicant(s)

OKAGAWA ET AL.

Examiner

Ben H. Liu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 11 March, 2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 5, 7, 8, 9, 10, and 12 are objected to because of the following informalities:

In claim 5, it appears the phrase "a unicast packet" and "a multicast packet" in lines 19-20 refer to "a unicast packet" and "a multicast packet" as recited in claim 5 lines 2-3. If that is the case, it is suggested that the applicant change the phrase to "the unicast packet" and "the multicast packet," respectively.

In claim 7, it appears the phrase "a storage position" in lines 2 and 4 refer to "a storage position" as recited in claim 6 line 5. If that is the case, it is suggested that the applicant change the phrase to "the storage position."

In claim 8, it appears the phrase "a storage position" in line 3 refers to "a storage position" as recited in claim 6 line 5. If that is the case, it is suggested that the applicant change the phrase to "the storage position." A similar problem exists for the phrase "a unicast packet" in line 5, which appears to refer to "a unicast packet" as recited in claim 5 line 2. If that is the case, it is suggested that the applicant change the phrase to "the unicast packet." Further, it appears the phrase "a value of the pointer" in line 8 refers to "a value of a pointer" in claim 6 line 14. If that is the case, is suggested that the applicant change the phrase to "the value of the pointer."

For claim 9, it appears the phrase "a unicast packet" and "the multicast packet" in lines 7 and 18, respectively, refers to the limitation "a unicast packet" and "a multicast packet" in lines 2-3. If that is the case, is suggested that the applicant change the phrase to "the unicast packet" and "the multicast packet," respectively.

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In claim 10, it appears the phrase "a unicast packet" and "a multicast packet" in lines 14-15 refer to "a unicast packet" and "a multicast packet" as recited in claim 9 lines 2-3. A similar problem exist for the phrase "a unicast packet" in line 4 and "a multicast packet" in line 7-8. If that is the case, it is suggested that the applicant change the phrase to "the unicast packet" and "the multicast packet," respectively.

Also in claim 10, it appears the phrase "a table storing unicast packet management information" in lines 5-6 refers to "a table storing for each output port the management information about each unicast packet" in claim 9 line 11. If that is the case, it is suggested that the applicant change the phrase to "the table storing unicast packet management information."

Also in claim 10, it appears the phrase "a table storing multicast packet management information" in lines 8-9 refers to "a table provided for the one output port and storing the management information about each multicast packet" in claim 9 line 21-23. If that is the case, it is suggested that the applicant change the phrase to "the table storing multicast packet management information."

In claim 12, it appears the phrase "a storage address" in line 3 refers to "a storage address" as recited in claim 11 line 17. A similar problem exists for the phrase "a storage address" in lines 6, 12, 13-14, 21 and 23. If that is the case, it is suggested that the applicant change the phrase to "the storage address."

Also in claim 12, it appears the phrase "a table storing management information about the unicast packet" in lines 3-5 refers to "a table storing management information about the unicast packet" in claim 11 lines 17-18. A similar problem exists for the phrase "a table storing management information about the unicast packet" in lines 6-7, 11-12, 12-13, and 21-22. If that

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is the case, it is suggested that the applicant change the phrase to "the table storing management information about the unicast packet."

Also in claim 12, it appears the phrase "a unicast packet" and "a multicast packet" in lines 18-19 refer to "a unicast packet" and "a multicast packet" as recited in claim 11 lines 2-3. If that is the case, it is suggested that the applicant change the phrase to "the unicast packet" and "the multicast packet," respectively. A similar problem exists for the phrase "a unicast packet" in line 20, which also appears to refer to "a unicast packet" as recited in claim 11 line 2.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 9 and 11 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

For claims 9 and 11, the claim limitation "a program used to direct a computer" in line 1 of claim 9 and line 1 of claim 11 is not a process, machine, manufacture, or composition of matter, or any new and useful improvement thereof because there is no physical structure/connection of medium recited in the claims. To overcome this rejection, it is suggested that the applicant change the limitation "a program used to direct a computer" to "a computer readable medium encoded with a computer program."

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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7. Claims 1-4 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al. (U.S. Patent Application Publication 2004/0066791) in view of Wilford et al. (U.S. Patent 6,687,247).

For claims 1 and 13, Wu et al. discloses a packet transfer path control apparatus which controls a transfer of a unicast packet and a multicast packet, comprising: an output port determination unit determining an output port through which a packet input from any of one or more input ports is to be output (see paragraphs 46 and 55); a packet data storage unit storing data of the input packet (see paragraph 53); and a plurality of packet output units respectively corresponding to the plurality of output ports, each packet output unit reading data of a packet determined by said output port determination unit to be output through a corresponding output port associated with the packet output unit, and outputting the read data through the corresponding output port (see paragraph 79).

For claim 3, Wu et al. discloses a packet transfer path control apparatus which controls a transfer of a unicast packet and a multicast packet, wherein: said packet output unit for each output port compares output order identification information about a next output unicast candidate of packets whose packet management information is stored in said unicast packet management information storage unit with output order identification information about a next output multicast candidate of packets whose packet management information is stored in said multicast packet management information storage unit, and determining a packet to be output next from the output port (see paragraphs 56 and 73).

For claims 1-4 and 13, Wu et al. disclose all the subject matter of the claimed invention with the following exceptions:

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a packet transfer path control apparatus which controls a transfer of a unicast packet and a multicast packet, comprising: assigning output order identification information for designation of an output order of the packet and outputting packets in an output order indicated by the output order identification information from said packet data storage unit as recited by claims 1 and 13.

a packet transfer path control apparatus which controls a transfer of a unicast packet and a multicast packet, comprising: a unicast packet management information storage unit storing for each output port management information including a storage position in said packet data storage unit of the data of each unicast packet to be output through the output port and output order identification information for the unicast packet; and a multicast packet management information storage unit provided for each output port and storing, for each of the multicast packets to be output through the output port, management information including a storage position in said packet data storage unit of the data of the multicast packet and output order identification information of the multicast packet as recited in claim 2.

a packet transfer path control apparatus which controls a transfer of a unicast packet and a multicast packet, wherein: said output order identification information is serial numbers indicating input orders of all packets input through all input ports, or a serial number for all packets input through each output as recited in claim 4.

Wilford et al. from the same or similar fields of endeavor teach a linecard architecture for high speed routing of data using a serial ID to establish the input order of packets (see column 19 lines 26-30) and input buffering for unicast and multicast packets (see column 45 lines 59-65). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the linecard architecture with a serial ID and input buffer as taught by Wilford et

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al. with the packet transfer path control apparatus as taught by Wu et al. The linecard architecture can be implemented by using the linecard as taught by Wilford et al. to provide the input ports of the packet transfer path control apparatus as taught by Wu et al. The motivation for using the linecard architecture as taught by Wilford et al. with the packet transfer path control apparatus as taught by Wu et al. is to allow high speed routing based on packet priority.

8. Claims 5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al. (U.S. Patent Application Publication 2004/0066791) in view of Headrick et al. (U.S. Patent 5,724,358).

For claims 5 and 14, Wu et al. disclose all the subject matter of the claimed invention with the exception of a pointer storage unit storing for each output port a pointer to a location where there is stored data of a last input one of the unicast packets to be output through the output port or packet management data for the last input unicast packet. Headrick et al. from the same or similar fields of endeavor teach a high speed packet switched digital switch and method including a pointer memory unit that forms an output queue (see column 7 lines 25-37). The output queue allows the output order of the data packets to be known (see column 9 line 50 to column 10 line 24). The output queue allows the order that the data packets are going to be sent out to be known (see column 7 lines 25-37). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the high speed packet switched data switch with pointer memory units as taught by Headrick et al. with the packet transfer path control apparatus as taught by Wu et al. The high speed switch can be implemented by integrating a pointer memory unit as taught by Headrick et al. with the output ports of the packet

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transfer path control apparatus as taught by Wu et al. The motivation for using the high-speed switch as taught by Headrick et al. is to provide inexpensive switches which allow multicast traffic with multiple priority levels.

9. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al. (U.S. Patent Application Publication 2004/0066791) and Headrick et al. (U.S. Patent 5,724,358) as applied in claim 5 above and further in view of Wilford et al. (U.S. Patent 6,687,247).

For claim 8, Headrick et al. discloses a packet output unit for each output port storing a storage position in said unicast packet management information storage unit of packet management information for a unicast packet output immediately before from the output port, comparing, when a next packet is to be output through the output port, a value of the pointer to a next output candidate of multicast packets whose packet management information is stored in said multicast packet management information storage unit with the storage position, and outputting a multicast packet when the value match the storage position or outputting a unicast packet when the value does not match the storage position (see column 9 line 50 to column 10 line 24).

For claims 6-8, Wu et al. and Headrick et al. disclose all the subject matter of the claimed invention with the exception:

a unicast packet management information storage unit storing for each output port packet management information including a storage position in said packet data storage unit for data of each unicast packet to be output through the output port; and a multicast packet management information storage unit provided for each output port and storing packet management

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information including a storage position in said packet data storage unit for data of each multicast packet to be output through the output port, and a value of a pointer read corresponding to the output port from said pointer storage unit when the multicast packet is input as recited in claim 6. Wilford et al. from the same or similar fields of endeavor teach a linecard architecture for high speed routing of data including a serial ID used to establish the input order of packets (see column 19 lines 26-30) and input buffering for unicast and multicast packets (see column 45 lines 59-65).

Wilford et al. from the same or similar fields of endeavor teach a linecard architecture for high speed routing of data using a serial ID to establish the input order of packets (see column 19 lines 26-30) and input buffering for unicast and multicast packets (see column 45 lines 59-65). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the linecard architecture with a serial ID and input buffer as taught by Wilford et al. with the packet transfer path control apparatus as taught by Wu et al and Headrick et al. The linecard architecture can be implemented by using the linecard as taught by Wilford et al. to provide the input ports of the packet transfer path control apparatus as taught Wu et al and Headrick et al. The motivation for using the linecard architecture as taught by Wilford et al. with the packet transfer path control apparatus as taught by Wu et al. is to allow high speed routing based on packet priority.

10. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilford et al. (U.S. Patent 6,687,247) in view of Wu et al. (U.S. Patent Application Publication 2004/0066791) and in further view of Wakabayashi et al. (U.S. Patent 6,947,413).

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For claims 9-11, Wilford et al. disclose a procedure to control a transfer of a unicast packet and a multicast packet comprising:

a procedure of, if the input packet is a unicast packet to be output through the one output port, writing, for the one output port, order identification information assigned for the unicast packet in a table storing for each output port the management information about each unicast packet to be output thorough the output port, the order identification information being assigned to all packets to be output through all of the output ports or all packets to be output through each port in to input order (see column 19 lines 26-30 and column 45 lines 59-65); and

a procedure of, if the input packet is a multicast packet to be output through the one output port, writing order identification information assigned for the multicast packet in a table provided for the one output port and storing the management information about each multicast packet to be output through the one output port, the order identification information being assigned to all packets to be output through all of the output ports or all packets to be output through each port in to input order (see column 19 lines 26-30 and column 45 lines 59-65);

a procedure of reading order identification information about a unicast packet to be output next from a table storing unicast packet management information corresponding to an output port, and reading order identification information about a multicast packet to be output next from a table storing multicast packet management information; and a procedure of comparing the two read values of order identification information, and determining which packet is to be output next through the output port, a unicast packet or a multicast packet (see column 45 lines 59-65 and column 47 lines 30-49);

a procedure of, when the input packet is a unicast packet, storing for the one output port a storage address in a table storing management information about the input packet or a storage address in a table storing the data of the input packet; and a procedure of, when the packet is a multicast packet, writing in a table storing management information about a multicast packet for each output port through which the packet is to be output a storage address in a table storing management information about a unicast packet stored corresponding to the output port or a storage address in a table storing the data of the packet (see column 9 lines 43-57 and column 45 lines 59-65);

For claims 9-11, Wilford et al. disclose all the subject matter of the claimed invention with the exception of a procedure of determining one of output ports through which one a packet input through an input port is to be output as recited in claims 9 and 11. Wu et al. from the same or similar fields of endeavor teach an asynchronous switching system including a linecard, which determines the output port of packets from the input line (see paragraph 55). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to implement the asynchronous switching system as taught by Wu et al. in the procedure to control a transfer of a unicast packet and a multicast packet as taught by Wilford et al. The asynchronous switching system as taught by Wu et al. can be implemented by using the line card described by Wu et al. in the procedure to control a transfer of a unicast packet and a multicast packet as taught by Wilford et al. The motivation for using the asynchronous switching system as taught by Wu et al. in the procedure to control a transfer of a unicast packet and a multicast packet as taught by Wilford et al. is to produce a simple input controller which reduces the complexity of the circuitry needed to for large capacity switching.

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For claims 9-11, Wilford et al. and Wu et al. disclose all the subject matter of the claimed invention with the exception that the procedure to control a transfer of a unicast packet and a multicast packet is implemented through a computer program. Wakabayashi et al. from the same or similar fields of endeavor teach a switching system for multicast and unicast traffic which has functionality implemented through software (see column 4 lines 14-30). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to implement the functionality of switching of multicast and unicast traffic through a computer program as taught by Wakabayashi et al. with the procedure to control a transfer of a unicast packet and a multicast packet as taught by Wilford et al. and Wu et al. The functionality of switching of multicast and unicast traffic as taught by Wakabayashi et al. can be implemented by installing software on the switch or multi-purpose computer which instructs the computer to control a transfer of a unicast packet and a multicast packet. The motivation for implementing the functionality of switching of multicast and unicast traffic using software as taught by Wakabayashi et al. is to allow for greater flexibility to meet changing traffic demands.

11. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wilford et al. (U.S. Patent 6,687,247), Wu et al. (U.S. Patent Application Publication 2004/0066791) and Wakabayashi et al. (U.S. Patent 6,947,413) and further in view of Headrick et al. (U.S. Patent 5,724,358).

For claim 12, Wilford et al., Wu et al., and Wakabayashi et al. disclose all the subject matter of the claimed invention with the exception:

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a procedure of reading a storage address in a table storing management information about the unicast packet corresponding to a multicast packet to be next output, or a storage address in a table storing data of a unicast packet from a table storing management information about a multicast packet for each output port;

a procedure of comparing the read storage address in a table storing management information about the unicast packet or a storage address in a table storing data of the unicast packet with a storage address in a table storing management information about the last output unicast packet or the storage address in a table storing the data of the packet, and determining which is to be output from the output port, a unicast packet or a multicast packet; and

a procedure of, when a unicast packet is output, storing a storage address in a table storing management information about the unicast packet to be output or a storage address in a table storing data of the packet.

Headrick et al. from the same or similar fields of endeavor teach a high speed packet switched digital switch and method including a pointer memory unit that forms an output queue (see column 7 lines 25-37). The output queue allows the output order of the data packets to be known (see column 9 line 50 to column 10 line 24). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the high speed packet switched data switch with pointer memory units as taught by Headrick et al. with the procedure to control a transfer of a unicast packet and a multicast packet as taught by Wilford et al., Wu et al., and Wakabayashi et al. The high speed switch can be implemented by integrating a pointer memory unit as taught by Headrick et al. with the output ports for the procedure to control a transfer of a unicast packet and a multicast packet as taught by Wilford et al., Wu et al., and

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Wakabayashi et al. The motivation for using the high-speed switch as taught by Headrick et al. is to provide inexpensive switches which allow multicast traffic with multiple priority levels.

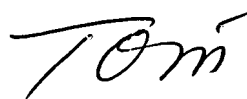
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ben H. Liu whose telephone number is (571) 270-3118. The examiner can normally be reached on Monday Through Friday 7:30AM to 5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dang Ton can be reached on (571) 272-3171. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BL



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SUPERVISORY PATENT EXAMINER